INDEX

PAGE

Air Furnace, Application of Fuel Oil to the Malleable ... 265
Air Furnace, Bung Brick in Oil-fired Malleable ... 281
Alloy Steel Castings, Heat Treatment of ... 193
Aluminum Alloys, Chemical Composition of Light ... 415
Aluminum Alloys, Contraction of a series of ... 392
Aluminum Alloys, Linear Contraction of ... 422
Aluminum Radiator Shells, Casting Auto ... 467
American Research Groups Handling Corrosion Problems ... 475
Analyses of Auto Cylinder Iron, Strength and ... 86
Analysis of Iron for Automotive Crank Cases ... 96
Annealing Furnace and the Malleable Iron Industry, The Continuous ... 313
Annealing Malleable Castings, Advantages of Gas for ... 329
Annealing Pots and Their Length of Life, Malleable Casting ... 332
Annual Address of the President by C. R. Messinger ... 1
Annual Report of the Board of Directors ... 10
Annual Report of the Manager of Exhibits ... 33
Annual Report of the Secretary-Treasurer ... 35
Apprentice Course, Outline of Foundry ... 525
Apprentice Training, The Public Schools, Industry and ... 518
Apprentice Training at the Coxe Traveling Grate Co ... 496
Apprentice Training at the Plant of Brown & Sharpe Mfg. Co ... 544
Apprentice Training in the Foundries, Types of ... 503
Apprentice Training Schedule ... 564
Apprentices, Instruction Which Should Be Given To Foundry Workers and ... 538
Apprentices, A Plan for Training Foundry ... 549
Apprentices, Rates of Pay for ... 509
Apprentices, Schedule of Rates for Foundry ... 559
Apprentices, Schedule of Work for Foundry ... 557
Apprentices, Training Foundry ... 498
Apprentices at the Falk Corporation ... 553
Apprenticeship in the Foundry ... 491
Auditor's Financial Report of Technical Department ... 43
Auditor's Report for Dept. of Exhibits ... 47
Automobile Aluminum Radiator Shells, Casting ... 467
Automotive Work, Analysis of Miscellaneous Castings for ... 94
Automotive Casting Practice, Cupola Fuel Ratio in ... 91
Automotive Castings, Classes of ... 83
Automotive Castings, Gray Iron for ... 82
Automotive Castings, Manganese in ... 89
Automotive Castings, Phosphorus in ... 89
Automotive Castings, Silicon in ... 89
Automotive Castings, Sulphur in ... 90
Automotive Cylinder Iron, Strength and Analyses for ... 86
Automotive Pistons ... 93

Bibliography on Contraction and Shrinkage of Ferrous and Non-Ferrous Alloys, Selected ... 463
Blast Furnace, Reduction of Sulphur in ... 184

INDEX

PAGE

Air Furnace, Application of Fuel Oil to the Malleable ... 265
Air Furnace, Bung Brick in Oil-fired Malleable ... 281
Alloy Steel Castings, Heat Treatment of ... 193
Aluminum Alloys, Chemical Composition of Light ... 415
Aluminum Alloys, Contraction of a series of ... 392
Aluminum Alloys, Linear Contraction of ... 422
Aluminum Radiator Shells, Casting Auto ... 467
American Research Groups Handling Corrosion Problems ... 475
Analyses of Auto Cylinder Iron, Strength and ... 86
Analysis of Iron for Automotive Crank Cases ... 96
Annealing Furnace and the Malleable Iron Industry, The Continuous ... 313
Annealing Malleable Castings, Advantages of Gas for ... 329
Annealing Pots and Their Length of Life, Malleable Casting ... 332
Annual Address of the President by C. R. Messinger ... 1
Annual Report of the Board of Directors ... 10
Annual Report of the Manager of Exhibits ... 33
Annual Report of the Secretary-Treasurer ... 35
Apprentice Course, Outline of Foundry ... 525
Apprentice Training, The Public Schools, Industry and ... 518
Apprentice Training at the Coxe Traveling Grate Co ... 496
Apprentice Training at the Plant of Brown & Sharpe Mfg. Co ... 544
Apprentice Training in the Foundries, Types of ... 503
Apprentice Training Schedule ... 564
Apprentices, Instruction Which Should Be Given To Foundry Workers and ... 538
Apprentices, A Plan for Training Foundry ... 549
Apprentices, Rates of Pay for ... 509
Apprentices, Schedule of Rates for Foundry ... 559
Apprentices, Schedule of Work for Foundry ... 557
Apprentices, Training Foundry ... 498
Apprentices at the Falk Corporation ... 553
Apprenticeship in the Foundry ... 491
Auditor's Financial Report of Technical Department ... 43
Auditor's Report for Dept. of Exhibits ... 47
Automobile Aluminum Radiator Shells, Casting ... 467
Automotive Work, Analysis of Miscellaneous Castings for ... 94
Automotive Casting Practice, Cupola Fuel Ratio in ... 91
Automotive Castings, Classes of ... 83
Automotive Castings, Gray Iron for ... 82
Automotive Castings, Manganese in ... 89
Automotive Castings, Phosphorus in ... 89
Automotive Castings, Silicon in ... 89
Automotive Castings, Sulphur in ... 90
Automotive Cylinder Iron, Strength and Analyses for ... 86
Automotive Pistons ... 93

Bibliography on Contraction and Shrinkage of Ferrous and Non-Ferrous Alloys, Selected ... 463
Blast Furnace, Reduction of Sulphur in ... 184

PAGE

Board of Directors, Annual Report of 10
Board of Directors, Minutes of Meetings 13
Bonding or Cohesiveness Test of Molding Sand 687
Brass, Comparison of Furnaces for Melting 358
Brass, Deoxidizers 363
Brass Fluxes 362
Brass and Bronze, Contraction of 372
Brass and Bronze, Notes on the Proper Melting and Pouring 355
Brass Molding, Sand Reclamation and Conservation Experiments 651
Brass Turnings, Briquetting 350
Brasses, Chemical Composition of Bronzes and 376
Brasses and Bronzes, Pouring Temperatures for 356
Briquetting Brass Turnings 350
British Foundry Practice, Ferrous and Non-ferrous 55
Bronze, Comparison of Furnaces for Melting 358
Bronze, Contraction of 372
Bronze, Deoxidizers 363
Bronze Fluxes 362
Bronze Tablets, Casting 388
Bronzes, Chemical Composition of Brasses and 376
Bronzes and Brasses, Pouring Temperatures for 356
Bung Brick in Oil-fired Malleable Air Furnace 281

Carbon in Automotive Castings 87
Carbon Regulation in Iron in Electric Furnace 137
Cast Iron, Desulphurization of 183
Cast Iron, Effects of Silicon on Gray 77
Cast Iron, Graphite in Gray 68
Cast Iron in Britain, Developments of Gray 57
Cast Iron in the Electric Furnace 136
Casting, Centrifugal 111
Casting Bronze Tablets 388
Castings, Classes of Automotive 83
Castings, Gray Iron for Automotive 82
Castings, Miscellaneous, for Automotive Parts 94
Centrifugal Casting 111
Centrifugal Casting, Discussion 122
Centrifugal Casting, Temperature of Molds for 112
Centrifugal Casting Machines, Foundations for 121
Centrifugal Casting of Copper Shell Rings 131
Centrifugal Casting of Iron Piston Rings 125
Centrifugal Casting of Iron Piston Rings, Discussion on 133
Centrifugal Casting of Non-ferrous Castings 118
Centrifugal Mold Patent Situation 116
Centrifugal Molds, Pouring Spouts for 120
Chemical Analysis of Molding Sand 731
Chemical Composition of Brasses and Bronzes 376
Chemical Reagents in Preparing and Rebonding Molding Sands, The Use of 591
Chrome-Nickel, Steel Castings, Heat Treating 196
Clay Distribution in Foundry Sands Determined by the Microscope 584
Cohesiveness, Relation of, to Moisture Content of Molding Sand 646
Committee on Refractories, Report of 489
Contraction, Definition of Term Relating to Shrinkage and Contraction 397
Contraction, Linear, and Shrinkage of a series of Light Aluminum Alloys 392

PAGE

Contraction and Shrinkage, of Ferrous and Non-ferrous Alloys, A Bibliography 463
Contraction and Shrinkage Allowance for Some Metals 405
Contraction of Aluminum Alloys, Effects of Pouring Temperature on 451
Contraction of Brass and Bronze, Linear 372
Contraction of Non-ferrous Alloys in Chill and Graphite Molds 439
Contraction of 41 Light Aluminum Alloys, Linear 422
Core Mixtures for Light Steel Castings 236
Core Mixtures for Light Steel Castings, Discussion on 257
Core Mixtures of Pitch Compound, Oil and Flour Binders, Tests of 246
Core Sands 678
Core Testing Machine 240
Corrosion of Ferrous Alloys, Report of Committee on 469
Corrosion of Ferrous Metals, Outline of Experiments on Soil 477
Corrosion Problems, American Research Groups Handling 475
Cost of Core Mixtures for Steel Castings 237
Costs, of Electric Furnace Cast Iron 148
Costs of Manufacturing Synthetic Iron in Electric Furnace 165
Crankcases, Strength and Analysis of Iron for Automotive 96
Cupola, Pyrometer Used in Obtaining Melting Data of 103
Cupola, Visual Observation of Melting in 101
Cupola Fuel Ratio in Automotive Practice 91
Cylinder Iron, Strength and Analysis of Auto 86

Deoxidizers for Brass and Bronze 363
Desulphurization of Cast Iron 183
Desulphurization of Cast Iron—Discussion 191
Dye Adsorption Test of Molding Sand 727

Electric Furnace, Carbon Regulation in Gray Cast Iron in 137
Electric Furnace, Cost of Synthetic Foundry Iron in 165
Electric Furnace, Gray Cast Iron in 136
Electric Furnace, Malleable Iron Cast in Small Quantities in an 340
Electric Furnace, Silicon, Manganese and Phosphorus in Iron in 139
Electric Furnace for the desulphurization of Cast Iron 185
Electric Furnace Gray Iron—Discussion 143
Electric Furnace Iron, Sulphur Regulation of 145
Electric Furnace Iron Costs—Discussion 152
Electric Furnace Iron from Managerial Standpoint or Costs 148
Electric Furnace Manufacture of Synthetic Foundry Iron 154

Federal Government and Vocational Training 519
Ferrous Alloys, A Bibliography on Shrinkage and Contraction of 463
Ferrous Alloys, Report of Committee on Corrosion of 469
Ferrous and Non-ferrous, British Foundry Practice 55
Fineness Test of Molding Sand 722
Fluxes for Brass and Bronze 362
Foundations for Centrifugal Casting Machines 121
Foundry Apprentices, Schedule of Rates for 559

PAGE

Foundry Iron, Synthetic, in Electric Furnace 154
Foundry Training at Wentworth Institute 569
Foundry Training Course, Outline of 525
Foundry Training Instruction Which Should be Given Apprentices and Workers 538
Fuel Oil, Application of to Malleable Air Furnace 265
Fuel Ratio in Auto Casting Practice, Cupola 91
Furnaces, Comparison of, for Brass and Bronze 358

Gas as a Fuel for Annealing Malleable Castings 329
Geological Surveys of Molding Sand, Report of Sub-committee on 669
Grain, Effect of Size on the Cohesiveness of Molding Sand 614
Graphite in Gray Cast Iron 68
Gray Cast Iron, Effects of Silicon on 77
Gray Cast Iron, Graphite in 68
Gray Cast Iron in Britain, Developments of 57
Gray Cast Iron in the Electric Furnace 136
Gray Iron for Automotive Castings 82
Growth of Graphite Flakes in Cast Iron, Controlling 73

Hardened and Tempered Malleable Castings 296
Hardening Malleable Castings, Possibilities of 310
Heat Treating Malleable Iron Castings by Hardening and Tempering 297
Heat Treating Small Steel Castings, Physical Properties Obtained in 207
Heat Treating Steel Castings, Discussion 217
Heat Treating Steel Castings, Discussion on 198
Heat Treating Steel Castings, Essential Factors in 205
Heat Treatment of Alloy Steel Castings 193
Heat Treatment of Steel Castings 203

Industry and the Public Schools 518
Instruction Which Should Be Given to Foundry Workers and Apprentices 538
Iron, Cylinder, Analysis and Strength 86
Iron, Effects of Silicon on Gray Cast 77
Iron, Graphite in Gray Cast 68
Iron for Automotive Castings, Gray 82
Iron for Automotive Crankcases, Strength and Analysis of 96
Iron in Britain, Developments of Gray Cast 57
Iron in the Electric Furnace, Gray Cast 136
Iron Piston Rings, Centrifugal Casting of 125

Lenses and Microscopes for Studying Foundry Sands 575
Long Life Mold, Refractory Material for 176
Long Life Mold Developmnt 171

PAGE

Malleable Air Furnace, Application of Fuel Oil to the 265
Malleable Air Furnace, Bung Brick in Oil-fired 281
Malleable Casting Annealing Pots and Their Length of Life 332
Malleable Castings, Gas as a Fuel for 329
Malleable Castings, Hardened and Tempered 296
Malleable Castings, Report of Committee on Specifications for 349
Malleable Iron, Annealing in Continuous Muffle Furnace 313
Malleable Iron, Effect on Refractories When Using Oil as Fuel in Annealing 323
Malleable Iron Cast in Small Quantities from the Electric Furnace 340
Malleable Iron Melted in Oil-fired Furnace, Chemical and Physical Properties of 271
Malleable Iron Shop, Method of Checking Scrapped Castings in 343
Manager of Exhibits, Annual Report of 33
Manganese in Automotive Castings 89
Manganese in Cast Iron in Electric Furnace 139
Manufacture of Synthetic Foundry Iron in Electric Furnace 154
Melting and Pouring of Brass and Bronze, Notes on the Proper 355
Melting Data at Various Points in a Cupola 105
Melting Furnaces for Brass and Bronze, Comparison of 358
Melting in a Cupola, Visual Observation of 101
Melting Practice for Small Steel Castings for Ordnance Purposes 232
Method of Sampling Molding Sand 743
Microscopic Illumination for Studying Foundry Sands 577
Minutes of Meetings of Board of Directors 13
Moisture, Effects of, on the Cohesiveness of Molding Sands 608
Moisture Content of Molding Sand, The Relation of Cohesiveness to 646
Mold Development, A New Long Life 171
Molding Sand, Bonding Test of 687
Molding Sand, Chemical Analysis of 731
Molding Sand, Dye Adsorption Test of 727
Molding Sand, Fineness Test of 722
Molding Sand, Method of Sampling 743
Molding Sand, Permeability Test of 697
Molding Sand, Report of Sub-committee on Conservation and Reclamation of 673
Molding Sand, Report of Sub-committee on Geological Surveys of 669
Molding Sand, Revised Permeability Test of 708
Molding Sand, Revision of Permeability Test of 706
Molding Sand Research, Report of Chairman of Joint Committee on 664
Molding Sand Testing, Report of Sub-committee on 683
Molds for Centrifugal Castings, Temperature of 112

Nickel-chrome Steel Castings, Heat Treatment of 196
Non-ferrous Alloys, Contraction of, in Chill and Graphite Molds 439
Non-ferrous Alloys, Patternmakers Shrinkage Allowance for 375
Non-ferrous and Ferrous, British Foundry Practice 55
Non-ferrous and Ferrous Alloys, A Bibliography on Contraction of 463
Non-ferrous Castings, Centrifugal Casting of 118

Pattern Maker's Shrinkage Allowance of Non-ferrous Alloys 375
Permeability Test of Molding Sand 697
Permeability Test of Molding Sand; Revised 708

PAGE

Phosphorus and Sulphur in Steel, Report of Committee on Investigation of ... 222
Phosphorus in Automotive Castings ... 89
Phosphorus in Cast Iron in the Electric Furnace ... 139
Photomicrography of Foundry Sands ... 574
Physical Results of Heat Treating, Nickel-Chrome Steel Castings ... 196
Piston Rings, Centrifugal Casting of Iron ... 125
Pistons, Automotive ... 93
Pouring Spouts for Centrifugal Molds ... 120
Pouring Temperatures on Contraction of Aluminum Alloys, Effects of ... 451
President, Address of the, 1923 ... 1
Production of Steel Track Links for Army Tractors ... 223
Public Schools, Industry and the ... 518
Pyrometer Used for Obtaining Temperature Data ... 103

Reclaiming Foundry Sands by Wet Process of Separation ... 658
Reclaiming Sand by the Dry Process of Separation ... 659
Reclamation, Sand Conservation and, Using Doty Cohesiveness Testing Machine ... 605
Reclamation and Conservation Experiments in Brass Molding Sands ... 649
Reclamation of core Sands ... 594
Reclamation of Core Sands, Discussion ... 603
Reclamation of Foundry Sand ... 656
Refractories, Effect on, When Using Oil as a Fuel in Annealing Furnaces for Malleable Iron ... 323
Refractories, Report of Committee on ... 489
Refractory Materials for Long Life Molds ... 176
Report for Department of Exhibits, Auditor's ... 47
Report of A. F. A. Committee on Specification for Malleable Castings ... 349
Report of A. F. A. Representative on Joint Committee on Investigation of Phosphorus and Sulphur in Steel ... 222
Report of Board of Directors, Annual ... 10
Report of Chairman of Committee on Molding Sand Research ... 664
Report of Committee on Corrosion of Ferrous Alloys ... 469
Report of Committee on Refractories ... 489
Report of Committee on Specifications for Steel Castings ... 262
Report of Manager of Exhibits ... 33
Report of Secretary-Treasurer, Annual ... 35
Report of Sub-committee on Conservation and Reclamation of Molding Sand ... 673
Report of Sub-committee on Geological Surveys of Molding Sand ... 669
Report of Sub-committee on Sand Testing Methods ... 683
Report of Technical Department, Auditor's Financial ... 43

Sampling Molding Sand; Method of ... 743
Sand, A Physical Test for Foundry ... 623
Sand, Bonding Test of Molding ... 687
Sand, Chemical Analysis of Molding ... 731
Sand, Dye Adsorption Test of Molding ... 727
Sand, Effects of Machine Mulling on the Cohesiveness of Molding ... 616
Sand, Fineness Test of Molding ... 722
Sand, Effects of Moisture on the Cohesiveness of Molding ... 608

PAGE

Sand, Effects of the Grain Size on the Cohesiveness of Molding 616
Sand, Method of Sampling Molding 743
Sand, Permeability Test of Molding 697
Sand, Reclaiming, by the Dry Process of Separation 659
Sand, Reclaiming Foundry 656
Sand, Relation of Cohesiveness to the Moisture Content of Molding 646
Sand, Report of Sub-committee on Conservation and Reclamation of Molding 673
Sand, Report of Sub-committee on Geological Surveys of Molding 669
Sand, Revised Permeability Test of Molding 708
Sand, Revision of Permeability Test of Molding 706
Sand Conservation and Reclamation Using the Doty Cohesiveness Testing Machine 605
Sand Grains, Shape Determined by Microscope 582
Sand Reclamation and Conservation Experiments, Brass Molding 649
Sand Reclamation Experiments, Refuse 651
Sand Reclamation Tests Using Doty Cohesiveness Testing Machine—Discussion 620
Sand Research, Report of Chairman of Joint Committee on Molding 664
Sand Testing Methods, Report of Sub-committee on 683
Sands, Clay Distribution in Foundry Determined by the Microscope 584
Sands, Core 678
Sands, Discussion of Reclamation of Core 603
Sands, Lenses and Microscopes for Studying Foundry 575
Sands, Microscope Illumination for Studying Foundry 577
Sands, Photomicrography of Foundry 574
Sands, Reclaiming Foundry, by Wet Process of Separation 658
Sands, Reclamation of Core 594
Sands, The Cohesiveness Test of Foundry 640
Sands, The Use of Chemical Reagents in Rebonding Molding 591
Sands, the Vibratory Test of Molding 628
Secretary, Annual Report of 35
Shrinkage, Definition of Terms Relating to Contraction and 397
Shrinkage of Aluminum on Passing from Liquid to Solid State 409
Shrinkage of Brass and Bronze Castings 376
Silicon, Manganese and Phosphorus in Iron from Electric Furnace 139
Silicon in Automotive Castings 89
Silicon on Gray Cast Iron, Effects of 77
Specifications for Malleable Castings, Report of Committee on 349
Specifications for Steel Castings, Report of Committee on 262
Steel, Report of Committee on Investigation of Phosphorus and Sulphur in 222
Steel Castings, Core Mixtures for 236
Steel Castings, Heat Treating 203
Steel Castings, Heat Treating of Nickel-chrome 196
Steel Castings, Heat Treatment of 193
Steel Castings, Physical Properties Obtained on Heat Treating Small 207
Steel Castings, Report of Committee on Specifications for 262
Steel Castings, X-rays for Investigating 235
Steel Castings for Ordnance Purposes, Melting Practice for 232
Steel Castings in Great Britain, Developments of 61
Steel Track Links and Grousers, Production of 223
Strength and Analysis of Auto Cylinder Iron 86
Strength and Analysis of Iron for Automotive Crankcases 96
Sulphur and Phosphorus, Report of Committee on Investigation of 222
Sulphur in Automotive Castings 90
Sulphur in Blast Furnace, Reduction of 184
Sulphur Reduction of Cast Iron in the Electric Furnace 185

PAGE
Sulphur Regulation Electric Furnace Iron 145
Synthetic Foundry Iron Manufacture in Electric Furnaces 154

Temperatures for Brasses and Bronzes, Pouring 356
Temperatures of Molds for Centrifugal Casting 112
Test for Foundry Sand, A Physical 623
Test of Foundry Sands, The Cohesiveness 640
Test of Molding Sand, Dye Adsorption 727
Test of Molding Sand, Fineness 722
Test of Molding Sand, Permeability 697
Test of Molding Sand, Revised Permeability 708
Test of Molding Sand, Revision of Permeability 706
Test of Molding Sands, Discussion of the Vibratory 631
Test of Molding Sands, The Vibratory 628
Testing Methods, Report of Sub-committee on Sand 683
Trained Workers, How the Foundry Industry Should Secure Its Share of. 566
Training, Federal Government and Vocational 519
Training at the University of Minnesota, Foundry 522
Training Foundry Apprentices 498
Training Foundry Apprentices, A Plan for 549
Training Foundry Apprentices at the Falk Corp 553
Training Foundry Workers 513
Training Foundry Workers, A Plan for 531

University of Minnesota, Foundry Training at the 522

Visual Observation in a Cupola—Discussion 109
Visual Observation of Melting in a Cupola 101

Wentworth Institute, Foundry Training at 569

X-rays for Investigating Steel Castings 235

AUTHORS' INDEX

Anderson, R. J., Linear Contraction of a Series of Brasses and Bronzes 371
Linear Contraction of a Series of Light Aluminum Alloys... 392

Barton, L. J., Electric Furnace Iron from the Manager's Standpoint 148

Bolton, J. W., Graphite in Gray Iron 68

Cammen, L., Centrifugal Casting 111

Dietert, H. W., Applied Photomicrography of Foundry Sands..... 574

Dressler, P., The Adaptation of the Continuous Muffle Annealing Furnace to the Malleable Iron Industry 313

Elliott, G. K., Gray Iron from the Point of View of the Electric Furnace 136

Fahlman, E. G., Linear Contraction of a Series of Brasses and Bronzes 371

Felton, S. J., Malleable Iron Cast in Small Quantities 337

Frommelt, H. A., Training Foundry Apprentices at the Falk Corporation 553

Grennan, J., Training Foundry Workers 513
Visual Observation of Melting in a Cupola 101

Grubb, A. A., Brass Molding Sand Reclamation and Conservation Experiments 649
Reclamation of Core Sands 594

Hall, J. H., Discussion—Heat Treatment of Steel Castings 220

Halsey, E. D., Checking Malleable Foundry Scrap 343

Harrington, R. F., Sand Conservation and Reclamation Tests Using the Doty Cohesiveness Testing Machine 605

Hartley, L. A., A Plan for the Education and Training of Worker and Apprentice 531

Highriter, H. W., The Use of Chemical Reagents in Preparing and Rebounding Molding Sands 591

Hosmer, M. A., Sand Conservation and Reclamation Tests Using the Doty Cohesiveness Testing Machine 605

Kasjens, J. G., Casting Bronze Tablets 388

Kirby, F. W., Apprenticeship in the Foundry 503

Klein, L. W., Training at the Coxe Traveling Grate Co. 496

Koch, C. S., Core Mixture for Light Steel Castings 236

Lane, H. M., Reclaiming Foundry Sand 656

Larsen, B. M., Manufacture of Synthetic Foundry Iron in the Electric Furnace 154

Longmuir, P., British Foundry Practice—Ferrous and Non-Ferrous ... 55

Lorenz, A. W., Heat Treatment of Alloy Steel Castings 193

MacComb, W. L., Sand Conservation and Reclamation Tests Using the Doty Cohesiveness Testing Machine 605

Mays, A. B., Industry and the Public Schools 518

Messinger, C. R. President's Address by, 1923 1

Mills, W. A., Casting Automobile Aluminum Radiator Shells 467

Minton, H. C., Production of Steel Track Links and Grousers for Army Tractors 223

Moldenke, R., A New Long Life Mold Development 171
Desulphurization of Cast Iron 183

Morrin, C. M., Apprenticeship 544

Neel, H. A., Heat Treatment of Steel Castings 203

Nevin, C. M., The Cohesiveness Test of Foundry Sands 640

Parker, E. A., Training Apprentices 498

Potter, O. W., Training Foundrymen at the University of Minnesota 522

Rathbone, J. A., Centrifugal Casting of Iron Piston Rings 125

Ries, H. The Cohesiveness Test of Foundry Sands 640

Romanoff, W., Notes on the Proper Melting and Pouring of Brass and Bronze 355

Simon, W. F., Apprenticeship in the Foundry 491

Sims, C. E., Manufacture of Synthetic Foundry Iron in the Electric Furnace 154

Smith, E. K., Hardened and Tempered Malleable Castings 295

Smith, E. W., A Physical Test for Foundry Sands 623

Stokes, F. W., Discussion—Centrifugal Casting of Iron Piston Rings 133

Swan, H. B., Notes on Gray Iron for Automotive Castings 82

Tanner, J. R., Apprenticeship in the Foundry 564

Van Lantschoot, A., Application of Fuel Oil to the Malleable Air Furnace 265

Williams, C. E., Manufacture of Synthetic Foundry Iron in the Electric Furnace 154

Williston, A., L., By What Process Shall the Foundry Industry Maintain Its Rightful Proportion of Brains and Skill Among Industries? 566

Wolf, F. L., Brass Molding Sand Reclamation and Conservation Experiments 649

- Briquetting of Brass Turnings 350
- Notes on the Proper Melting and Pouring of Brass and Bronze 355
- Reclamation of Core Sands 594